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REPORT OF THE COMMITTEE ON PRACTICE OF MEDICINE.

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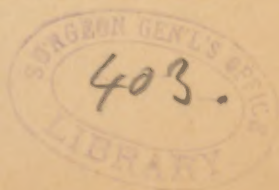
The Cause and Treatment of Pneumonia.

Pneumonia is one of the diseases best known to the medical profession. That a disease is well-known and easily diagnosed does not necessarily imply that it is thoroughly understood. When a disease is said to be thoroughly understood, it is meant that its aetiology, its processes or pathological modifications, its sequels and treatments are known, and accepted as settled by the profession. Formerly pneumonia of the idiopathic variety was supposed to be due to some atmospheric influence, which, by checking the peripheral circulation, turned the blood current with greater force to the central organs or lungs, the result of which was congestion and inflammation. The pathological process is still considered to be about the same, but the question of aetiology has given rise to some discussion, and in many minds, to doubt.

The germ theory of disease, which is accepted as a fact in regard to many diseases, has been advanced to explain the origin of pneumonia.

Since the discovery of the peculiar form of bacteria in the

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lungs of persons dead from pneumonia, a discovery made by Friedländer and Frobenius, much thought has been given to this phase of bacteriology. Six different varieties of bacteria have been mentioned by Bremmer¹ as causing this disease, and others have been mentioned by later writers.

The diplococcus of Fränkel² has lately been shown to be present in most cases of pneumonia, especially croupus pneumonia. Wolff³ found it in ninety-four per cent. of the cases examined by him, there being but a single negative result in seventy successive cases. Baumgartner⁵ thinks it is safe to assume a single, sole cause of pneumonia. In Wolff's cases verification was established by cultures in more than half the cases.

The first investigations were made after death, but later authors have examined sputa and exudations from the lungs of patients. Monti⁴ examined the exuded fluid in twenty cases with but one negative result. Sometimes the Frankel diplococcus was found in company with other bacteria. In these cases of Monti, Friedländer's micrococcus was not seen. Inoculation of fifty-nine rabbits, while universally successful, produced typical pneumonia only when the sputum was introduced into the trachea. Inoculation under the skin produces septicæmia; into the pleura, pleurisy; into the pericardium, pericarditis. Inoculation of the dura mater of a dog produced meningitis and lobar pneumonia. Fränkel⁵, Foa, Whittaker and others have shown that the cause of pneumonia is not confined to the lungs, but invades other organs and tissues. Weichselbaum⁶, Netter, Mircoli and others have found the diplococcus of pneumonia in the ventricles of the brain, connective tissue of the mediastinum, the jugulum, about the clavicle, behind the œsophagus, in cavities about the nose, in the drum cavity and labyrinth of the ear. It has been cultivated from the serum of the pericardium before there were any visible signs of inflammation. It has been found, likewise, in inflammation of the cord.

Emmerich¹ found great numbers of bacteria of the varieties herein referred to, under the floor of a hospital ward where many cases of pneumonia had been treated.

Writing in regard to pneumonia proper, Weichselbaum sums up his conclusions as follows:

1. The bacteria found in different forms of pulmonary inflammation are regarded as the cause of them. This conclusion is completely justified on the following ground: Definite, well characterized species of bacteria not only occur constantly in acute pulmonary inflammations, but can be demonstrated in greatest abundance and activity in the earlier stages of inflammations. They have been isolated, cultivated, and, when introduced into certain animals, have produced processes which, taking them *in toto*, correspond to inflammation of the lung in man.

2. The pulmonic virus is no unity, inasmuch as acute pulmonary inflammation, even croupus pneumonia proper, can be produced by different kinds of bacteria. In this the pneumonias recall acute inflammation of the connective tissue, in which, also, several species of organisms occur.

3. The separation of pneumonias into lobular and lobar, croupus and non-croupus, has an anatomical but no etiological significance. Moreover, the so-called secondary pneumonias, etiologicaly considered, are not secondary.

4. The diplococcus pneumoniae is to be regarded as a most frequent exciter of inflammation of the lungs. Friedländer's bacillus organism but rarely causes croupus pneumonia. Catching cold has only a possible predisposing effect.

This summary is, perhaps, a clear representation of the opinion held by the majority, at least, of bacteriologists, at the present time. The opinions of general practitioners are universally more conservative than those of specialists, and many able physicians still hesitate to accept unchallenged the theories and radical views of some bacteriologists.

It is well known that there is much study devoted to this subject at the present time, and many investigations have been made during the past year, but nothing that can be added, perhaps, to the stock of knowledge or opinion detailed above.

Dr. F. S. Billings, of Chicago, informs me that nothing new has been discovered; and as his personal views correspond with those of many other bacteriologists and the majority of the medical profession, I will quote his own words: "Personally, I do not think either the Weichselbaum, Fränkel or Friedländer organism has any specific relation to pneumonia in man." He gives as a reason or basis for this opinion, "that they are present in the mouths of healthy individuals and do not cause pneumonia, and have also been found attached to the bronchial mucosa of persons killed by accident or dying with intact lungs," but he further states that, "when active and prolonged congestion with serous bronchial effusion is present, then they may cause pneumonia."

When an epidemic occurs of a disease caused by bacteria, it is said that the air is filled with them. Prof. Nussbaum⁷ has stated that during an epidemic of cholera the air is filled with the cholera bacilli, and yet only one per cent. of the population are affected by the disease. Hence, ninety-nine people in every hundred, though eating, drinking, and breathing cholera bacilli, escape the disease. Such may well be believed to be the case with the bacillus of pneumonia, though it must be less powerful in its activities than that of cholera. It is well known that pneumonia is more prevalent in some seasons than others, and that it occurs most frequently under certain atmospheric conditions. Perhaps most cases occur during the winter and spring months⁸. The humidity of the atmosphere and the presence of ozone, also seem to exert a causative influence. On the 12th of October, 1889, at Waukegan, Ill., the wind was in the southwest; it suddenly changed to the northeast, the temperature fell from 70°

to 50°; the ozone in the atmosphere was increased. Several cases of catarrhal pneumonia occurred, the apparent cause being the change in the condition of the atmosphere. I noticed, however, that during the same period many cases of pneumonia were reported as occurring in other localities. The 15th of February, 1890, the wind was in the southwest, the temperature rose from 30° to 65°, ozone not marked, atmosphere humid. Several cases of pneumonia. April 1st to 5th wind mostly east and southwest, rainy, warmer, temperature 40° to 65°. New cases of pneumonia. Such observations are likely to make one believe that atmospheric changes are causative of the disease. Jaccoud, while not denying the etiological influence of bacteria, holds that exposure to cold is also causative, and perhaps generally the exciting cause.

Dr. Baker¹⁰ demonstrated before the Brooklyn Pathological Society that the curve representative of sickness from pneumonia pretty regularly followed the curve of temperature. His studies extended over many years and included nearly fifty thousand cases of pneumonia. He showed, in all his references, "that the sickness curve follows the temperature curve, not only in pneumonia, but also in bronchitis. If pneumonia were due to bacteriological influence, this cause must certainly be influenced by the weather, more than that bronchitis would probably be caused by the same germ."

Sevestre¹¹ considers that certain cases of endemic and epidemic broncho-pneumonia in childhood during the summer months, are due to dietary indiscretion, the inflammation extending to the lungs from the intestines through the lymph channel.

Tomasi¹², Golgi and others believe pneumonia to be caused sometimes by malarial poison, and this view corresponds with that of physicians in the southern part of Illinois and other malarial districts in the United States, where this form of disease is called "winter fever."

Dr. Mosny¹¹ reported to the Academy of Medicine, of Paris, a case of broncho-pneumonia in a woman who had been nursing a case of erysipelas. The patient died, and the examination of the exudation from the lungs revealed the fact that the pneumococcus was not present, but that the streptococcus erysipelatis was, showing, at least, that the disease was not caused by the bacillus of pneumonia.

At present it must be admitted that the cause of pneumonia is not fully settled by the profession; but the majority of physicians, probably, are not willing to subscribe to the bacillus theory. It has not been proved that the bacillus is not a concomitant rather than a cause of the disease. Still further investigation must make the final decision, and most likely we shall not wait long until the decision is made.

It has been hoped that the germ theory of disease might lead to specific medication. It may justly be anticipated, if this theory is true, that absolute cure of many diseases may be promised as soon as germicides are discovered which will kill the germs without injuring the patient. Is this possible? At present, we do not know. So far, at least, as pneumonia is concerned, the knowledge or lack of knowledge of the presence of the pneumococcus is of no avail in the treatment of the disease.

In the present state of our knowledge, the following indications for the treatment are clear: 1. To equalize the circulation and diminish the determination of blood to the lungs. 2. To reduce the temperature of the body. 3. To sustain the patient's strength. 4. To assist the mucous membranes and organs of secretion and excretion in the performance of their functions. 5. To allay pain.

The first two of these indications are met by the same general treatment. The chief object is to control the high heat, and this is largely accomplished by reducing the blood pressure and allaying the excitability of an overworked heart. I use aconite, gelsemium or digitalis according to

the grade of the fever, the condition of the lungs, the heart and the stomach. In high fever, with bounding, strong pulse, I use aconite and add gelsenium if there is irritable stomach, with or without headache. Petresco⁹ says digitalis may check pneumonia at the outset. It is of value in asthenic cases and where the heart is weak. Convalaria is sometimes advantageously substituted where digitalis is not well borne.

I have not been favorably impressed with antipyrin nor with antifebrin, and of late have not given them. Dr. Humphreys¹³ remarks that antipyrin should not be given in catarrhal pneumonia generally, and not in lobar pneumonia when there is oedema of the lungs.

Quinine is usually serviceable, and, in malarial cases, essential, not only to reduce temperature, but also as a germicide and antiperodic. But in some cases it affects the stomach and nervous system badly. Dr. Jacobi¹⁰ considers that quinine lessens pulmonary congestion and strengthens the heart's action. Alcohol, brandy or whisky in large doses will help control temperature and equalize the circulation. It has seemed to me that the alcohol secures this result by its action on the vaso-motor nervous system. I have also seen most beneficial results from early blistering with cantharides. It not only alleviates pain, but assists in controlling the congestion.

Liebermeister¹⁴ advises blood-letting when there is oedema of the lung; but I believe this may be avoided by blistering and the use of digitalis. He is also much in favor of the cold bath, preferably in the evening. There is no doubt that a wise use of the bath, tepid or cold, as circumstances may require, will assist in reducing temperature and has a restorative, rather than a debilitating effect.

In many asthenic cases tartar emetic seems to be of special value. Bruckner¹⁴ has reported over seventy cases treated

with this drug in which the success was so marked as to make him enthusiastically in favor of the remedy.

The ice bags to head and affected portion of lung, as recommended by Angel Morrey⁵, may be used with success and often give great comfort to the patient; but, like the baths, they must be attended to systematically. Morrey says the ice bag acts as a tonic to the heart, the nervous system, the muscular system and the respiratory centers. It thus aids in the third indication, maintaining the patient's strength. It soothes the motor and sensory systems, and in this way produces sleep.

For the difficult breathing likely to occur on the fifth day, with the small and rapid pulse, perhaps nothing is better than camphor, benzoic acid, valerian and such stimulants. Alcohol in large doses is likewise beneficial. The inhalation of carbonic acid gas in broncho-pneumonia, as recommended by Dr. Lamallerée¹⁵, I have not used. The third indication—the maintenance of the patient's strength—is accomplished chiefly by nourishment. With Fräntzel¹⁶, I recommend absolute rest in bed, and liquid nourishment. The patient should be well fed from the beginning. For thirst, lemonade, mineral and vegetable acids are refrigerant, and assist the digestive process. I use aromatic sulphuric acid generally, believing it to have a salutary influence upon the stomach, liver and pancreas, aiding in the digestion and assimilation of food.

The secretory functions should be carefully observed, and aid should be given to the mucous membrane of the lungs, to the liver, kidneys, pancreas and alimentary canal. Ipecac is an invaluable remedy as a stimulant to the mucous membranes and to the liver. Aromatic sulphuric acid is a stimulant to the pancreas and is of especial value in cases with typhoid symptoms. Digitalis and nitrate of potash are excellent renal stimulants. Mercury in some form in small doses, as a stimulant to the liver and intestinal canal, is very

useful. I prefer the mercury and calk mixture given for a few days, and then follow that with muriate of ammonia.

Pain must be controlled, and nothing can take the place of opium. I am in the habit, in uncomplicated cases, of giving the following prescription: R. Quiniae sulphatis, ꝑss; Pulvis Doveri, gr. xl; Hydrag. c. Creta, gr xx; M. et. div in Cap. No. 10.

The dose is for an adult and is varied to suit the patient, and his diseased condition, at intervals of four hours. This prescription assists in controlling the congestion, acts as a heart tonic, aids the patient in expectoration, assists the liver and intestinal canal in the performance of their functions, alleviates pain, and, if the Dover's powder is made with the nitrates instead of the sulphate of potash, stimulates the kidneys.

ADDENDUM.

It is to be regretted that there is not a well-appointed laboratory for microscopical and physiological research in Chicago. Two or three institutions do some elementary work, and a few gentlemen are making some private investigations, but nothing is done that compares well with Old World researches. I am informed by Dr. W. T. Belfield that some Eastern institutions, like Johns Hopkins University, are far ahead of us. Why should this be so? If one institution or society cannot control sufficient means to establish a laboratory that would be an honor to this great city—Chicago—there ought to be an *united* effort, and that at once. The subject of bacteriology ought to receive such attention in this country that we should not need to depend upon Europe for our knowledge. Before the beginning of the Columbian Fair, it is hoped that Chicago may be the seat of such a well-equipped laboratory for medical, physiological, microscopical and scientific investigation that our European brothers will realize that we are making rapid strides toward the front.

Then we may look for help to decide this vexed question of bacteriology, and the bacillus theory.

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